四川毛茛属五新种和一新变种，其中一新种代表一新组

王文采

（中国科学院植物研究所 系统与进化植物学国家重点实验室，北京 100093）

摘　要： 描述了自四川西部发现的毛茛科毛茛属五新种，其中三新种，石棉毛茛、细叉叶毛茛和细裂叶毛茛隶属美丽毛茛组，泸定毛茛隶属毛茛组，第五种，丝茎毛茛（特征为植株平卧，匍匐茎十或十多条辐射状开展，花的花瓣 3 片，雄蕊 2 枚）代表一新组。此外还描述了云生毛茛一新变种。

关键词： 毛茛科，毛茛属，新种，新变种，四川

Five new species and one new variety of *Ranunculus* (Ranunculaceae) from Sichuan, with one new section represented by one of these species

WANG Wen-Tsai [1]

(*State Key Laboratory of Systematic and Evolutionary Botany, Institute of Botany, Chinese Academy of Sciences*, Beijing 100093, China)

Abastract Five species of the genus *Ranunculus* (Ranunculaceae) are described as new from western Sichuan Province. Of them, three new species, *R. shimianensis*, *R. tenuifurcatus* and *R. perdissectus* belong to Sect. *Auricomus*, one new species, *R. ludingensis* belngs to Sect. *Ranunculus*, and the fifth new species, *R. filistolonifer*, characterized by prostrate and rudiately spreading 10 or more stolons, and 3 petals and 2 stamens per flower, represents a new section. Besides, one variety of *R. nephelongenes* is described as new too.

Key words Ranunculaceae, *Ranunculus*, new species, new variety, Sichuan

最近，我在鉴定同事朱相云，张树仁诸先生在近年自四川西部采集到的大量毛茛科植物标本的过程中，发现了以毛茛属下五新种和一新变种，其中一新种，丝茎毛茛代表一新组。

美丽毛茛组 Sect. Auricomus (*Spach*) *Schur*

石棉毛茛

Ranunculus shimianensis W. T. Wang, sp. nov.

Habitu species nova haec est aliquantum similis *R. hetianensi* L. Liou, a quo caulibus humilibus 3-6 cm altis, foliis caulinis indivisis, carpellis stylos brevissimos ferentibus valde differt. In *R. hetianensi*, caules 20 cm alti, folia caulina 3-secta, carpela stylos subulatos ferentes sunt.

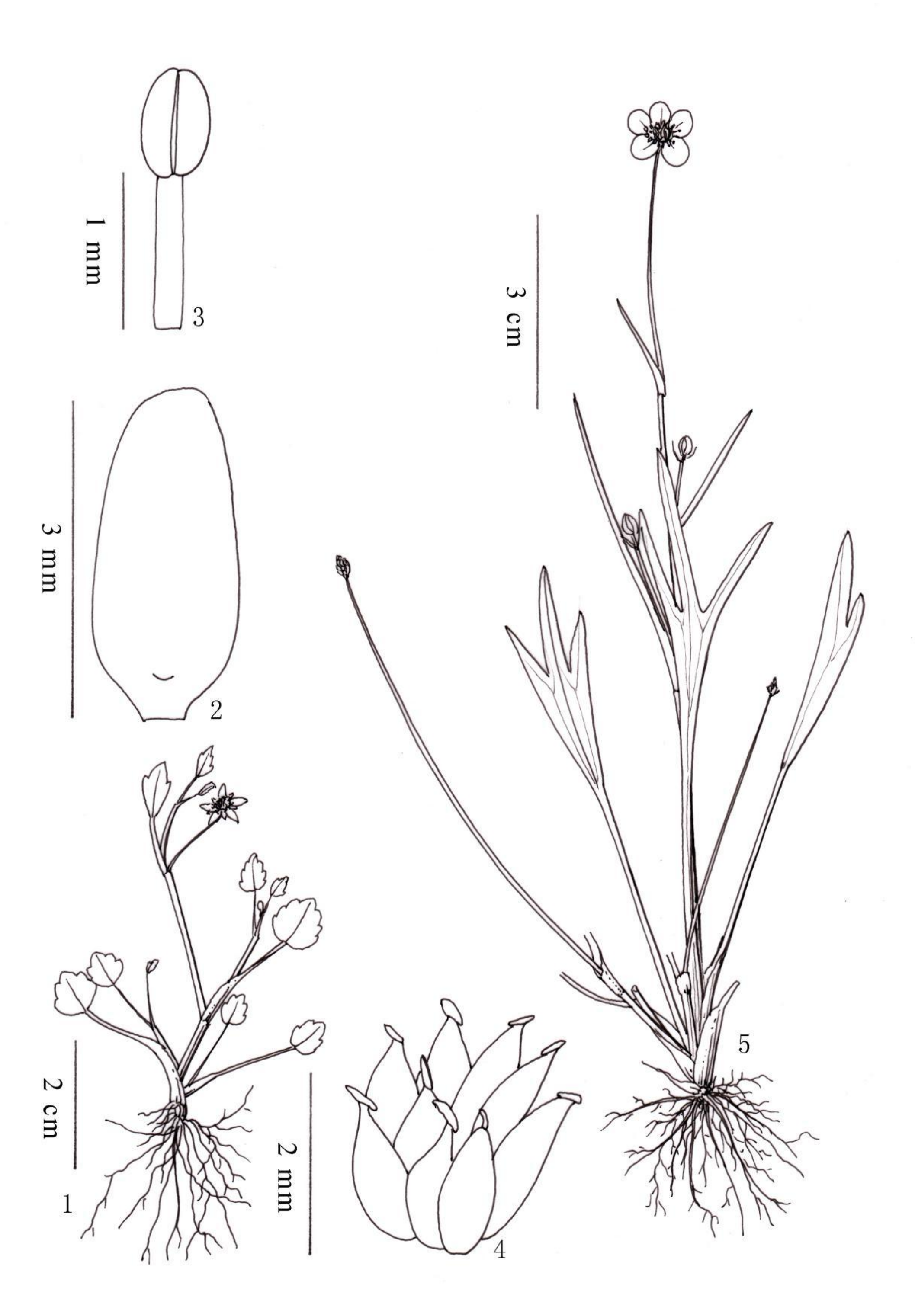
Small perennial herbs. Stems 1－3, 3－6 cm tall, glabrous, simple or above base with a short branch, 2－4-leaved and above 2-flowered, the other one or two stems shorter, vegetative, only 2-leaved. Basal leaves 3－5, long petiolate, glabrous; blades papery, deltoid, broad-ovate, rhombic or rotund-ovate, 4－7 × 4－8.5 mm, at base truncate or broodly cuneate, at apex obtuse, on each margin obtusely or rotundly 1－3-dentate, inconspicuously 3-nerved; petioles 0.7－2 cm long, at

收稿日期： 2020-12-20

基金项目： 中国科学院植物研究所资助王文采院士科研活动经费（110100PZ07）[Supported by the Fund for WANG Wen-tsai Academician Scientific Research of Institute of Botany, Chinese Academy of Sciences(110100PZ07)]。

作者简介： 王文采（1926-），男，研究员，中国科学院院士，著名植物分类学家，长期从事有花植物分类学研究。

base vaginate. Cauline leaves mostly similar to basal ones, glabrous, only the upper-most ones lanceolate or linear, and often on margin sparsely ciliate. Flower opposite to upper cauline leaf,



1-4. **石棉毛茛** 1. 开花植株；2. 花瓣；3. 雄蕊；4. 雌蕊群。5. **叉裂也云生毛茛** 开花植株。(据 holotypes，孙英宝绘)

Fig.1 1-4. **Ranunculus shimianensis** 1. Flowering plant; 2. Petal; 3. Stamen; 4. Gynoecium; 5. **R. nephelogenes** var. f**urcatolobatus** Flowering plant. (From holotypes, drawn by Y. B. Sun)

with pedicel 3 – 13 mm long. Sepals 5, broad-ovate, ca. 1.5 mm long. Petals 5, yellow, oblong-ovate, ca. 3 × 2 mm, glabrous, at apex rounded, abaxially above base with a small nectariferous pit lacking a scale. Stamens ca. 12, glabrous; filaments linear, 1 mm long; anthers broad-elliptic, ca. 0.8 × 0.5 mm. Carpels ca. 7, glabrous; ovaries 1 mm long; styles ca. 0.3 mm long; stigmas narrow-linear, ca. 0.2 mm long.

四川 (Sichuan)：石棉县，栗子坪乡，孟获新村，孟获城 (Shimian Xian, Liziping Xiang, Menghuoxincun, Menghuocheng), alt. 2580 m，草原，花黄色 (grassland, fls. yellow), 2019-04-18，张树仁，李邦泽，林东亮 (S. R. Zhang, B. Z. Li & D. L. Lin) 3102 (**holotype** and isotype, PE).

此种在体态方面与和田毛茛 *R. hetianensis* L. Liou 有些相似，与后者的区别在于此种的茎低矮，高 3~6 cm，茎生叶不分裂，心皮具极短花柱而明显不同。在和田毛茛，茎高 20 cm，茎生叶 3 全裂，心皮具钻形花柱。（刘亮，1980）

叉裂叶云生毛茛 新变种

Ranunculus nephelogenes Edgew. var. **furcatilobatus** W. T. Wang, var. nov.

A. var. *nephelongeni* differt foliorum basalium laminis furcate 3-lobatis. In var. *nephelongeni*, foliorum basalium laminae indivisae et integrae sunt.

此变种的基生叶叶片叉状 3 浅裂，而与模式变种不同。在模式变种，基生叶叶片不分裂，并全缘。（刘亮，1980）

四川 (Sichuan)：九龙县，汤古乡，伍须海 (Jiulong Xian, Tanggu Xiang, Wuxuhai), alt. 3707 m，湖边湿地，花黄色 (in wet place on lake bank, fls. yellow), 2019-07-11，张树仁，单章建，李邦泽 (S. R. Zhang, Z. J. Shan & B. Z. Li) 2944 (**holotype**, PE). 云南 (Yunnan)：中甸，天义 (Zhongdian, Tianyi), 1998-08-25，杨亲二，孔宏智 (Q. E. Yang & H. Z. Kong) 98-153 (PE); 同地 (same localyty)，碧塔海附近 (near Bitahai)，1998-09-03，杨亲二，孔宏智 98-239 (PE)。西藏 (Xizang)：Markam Xian, Hong La just on N Side of pass, S of Markam. Alt. 4083-4145 m. Mixed forest of *Picea*, *Abies*, *Quercus*, *Juniperus*, *Salix*. Seepage in open with various species other of *Ranunculus* and *Veronica*, 2000-07-12. D. E. Boufford, S. L. Kelley, R. H. Ree & S. K. Wu 29406 (PE).

细叉叶毛茛

Ranunculus tenuifurcatus W. T. Wang, sp. nov.

Ob folia basalia furcato-divisa, flores solitarios, petala 5, eorum foveolas nectariferas squamis carentes, carpella glabra, stigmata inconspicua species nova haec est affinis *R. furcatifido* W. T. Wang, a quo foliorum basalium laminis ambitu suboblongis, eorum lobis anguste linearibus margine intergris, petalis majoribus orbiculari-obovatis vel late obovatis 4.5 – 6 mm latis praeclare recedit. In *R. furcatifido*, foliorum basalium laminae ambitu late rhombicae, earum lobi oblongo-oblanceolati, lineares vel anguste lanceolati vulgo 1 – 2-lobulati, petala anguste obovata 2 – 3 mm lata sunt.

Perennial herbs. Stems 2, ca. 16 cm tall, from above base with long branches, appressed-pubescent. Basal leaves ca. 2, long petiolate; blades papery,suboblong in outline, 3 – 4 × 0.8 – 1.5 cm, furcately 3-parted, central lobe lanceolatee-linear, 2 – 2.4 × 0.1 – 0.2 cm, lateral lobes narrow-linear, 0.09 – 2 × 0.09 cm, adaxially glabrous, abaxially with sparse hairs; petioles 5 – 6 cm long, at base with narrow membranous sheaths. Cauline leaves narrow-linear, 1 – 4.8 × 0.02 – 0.12 cm, subglabrous, in lower ones at base with narrow sheaths. Flowers solitary, terminal to stem and upper short branches or only terminal to stem. Sepals (4 –)5, greenish, suboblong, ca. 4.8 × 1.1 mm, adaxially glabrous, abaxially appressed-pubescent. Petals 5, yellow,

orbicular-obovate or broad-obovate, 6 – 7 × 4.5 – 6 mm, at base shortly unguiculate, above base with a small nectriferous pit lacking a scale. Stamens ca. 10, glabrous; filaments narrow-linear, 1.2

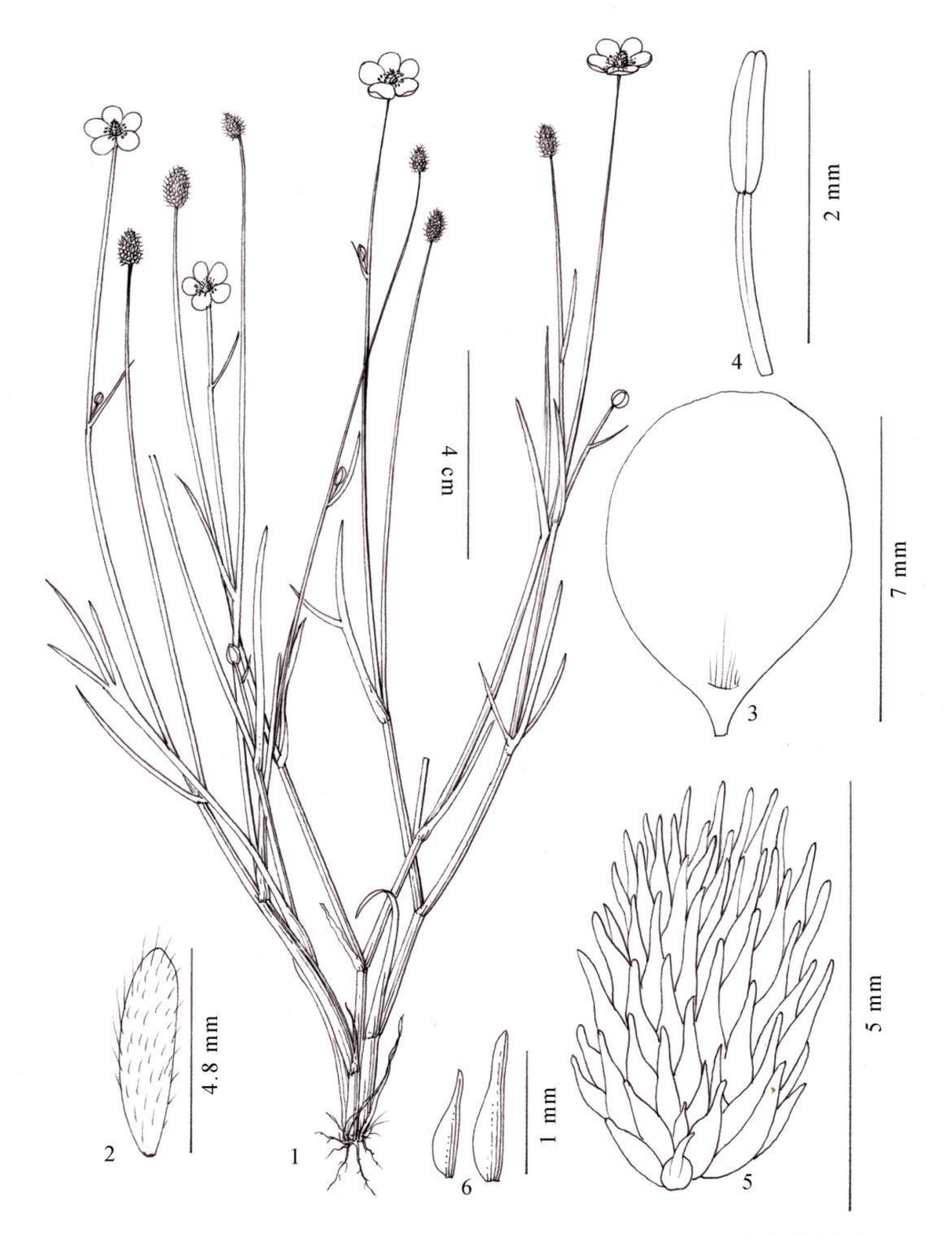


图 2. **细叉叶毛茛** 1. 开花植株；2. 萼片；3. 花瓣；4. 雄蕊；5. 雌蕊群。(据 holotype，孙英宝绘)

Fig.2 **Ranunculus tenuifurcatus** 1. Flowering plant; 2. Sepal; 3. Petal; 4. Stamen; 5. Gynoecium. (From holotype, drawn by Y. B. Sun)

mm long; anthers oblong ca. 1 × 0.3 mm. Gynoecium ovoid, ca. 4.5 × 3 mm; carpels ca. 80, glabrous; ovaries narow-ovate, 0.5 – 0.8 × 0.3 – 0.4 mm; styles 0.3 – 0.6 mm long, abaxially with inconspicuous stigma tissuue. Aggregate fruits narrow-ellipsoidal, ca. 6 × 4.8 mm; achenes

ellipsoidal, ca. 1 × 0.8 mm, glabrous; persistent styles 0.6 – 0.8 mm long.

四川 (Sichuan): 康定市，吊海子 (Kangding Shi, Diaohaizi), alt. 4 038 m，高山草甸 (on alpine meadow)，2017-07-21，朱相云，蒋勇，祖奎玲，张若鹏 (X. Y. Zhu, Y. Jiang, K. L. Zu & R. P. Zhang) GG117 (**holotype**, PE).

此种的基生叶叉状分裂，花单生，花瓣 5 枚，其蜜槽无鳞片，心皮无毛，柱头不明显，因此，与也具上述形态特征的叉裂毛莨（*R. furcatifidus* W. T. Wang）在亲缘关系上相近，与后者的区别在于此种的基生叶叶片轮廓呈近长圆形，其裂片呈狭条形，边缘全缘，花瓣较大，呈圆倒卵形或宽倒卵形，宽 4.5~6 mm。在叉裂毛莨，基生叶叶片轮廓呈宽菱形，其裂片呈长圆状倒披针形、条形或狭披针形，通常有 1~2 小裂片，花瓣呈狭倒卵形，宽 2~3 mm。（王文采，1994）

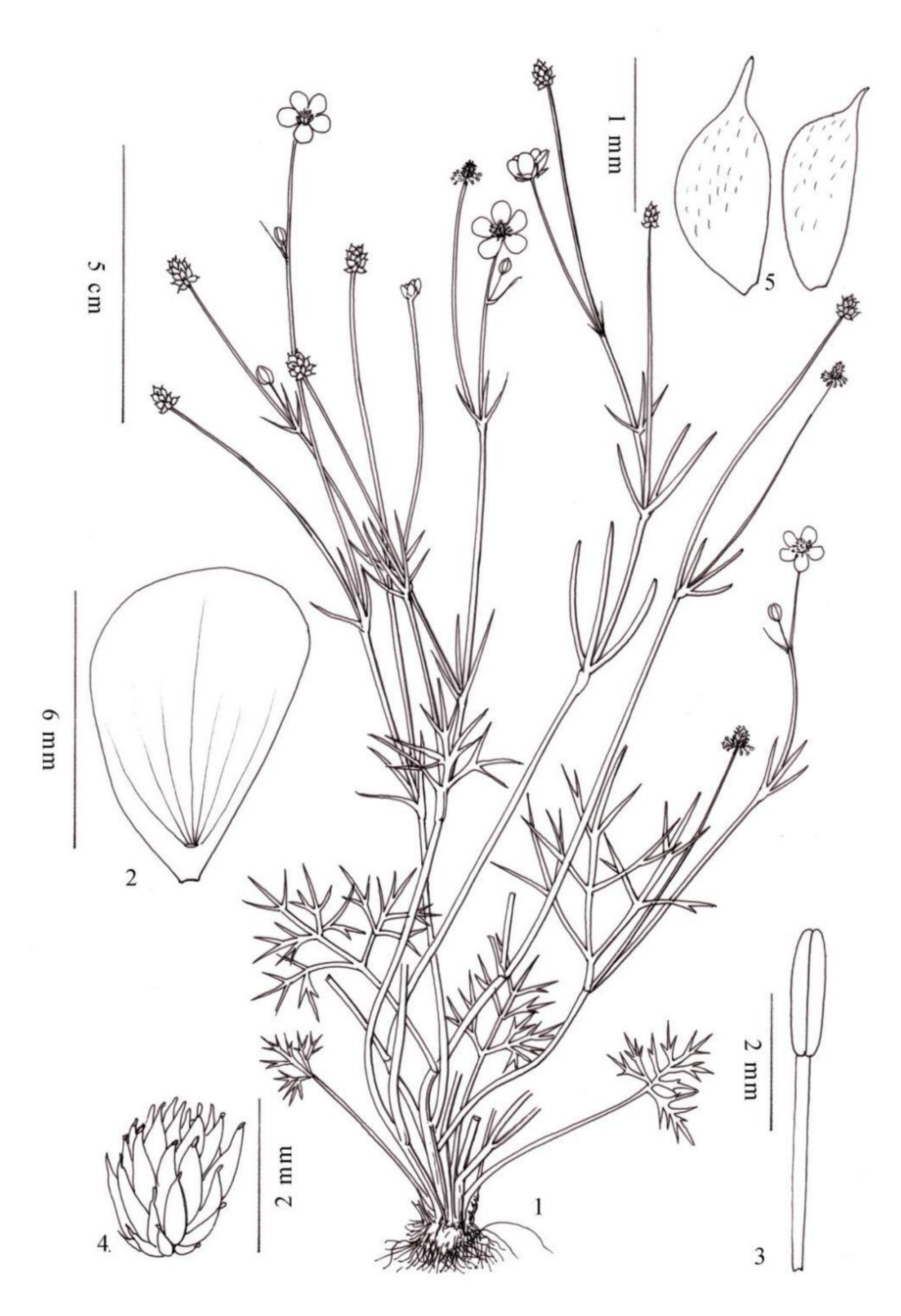


图 3. **细裂叶毛茛**　1. 开花并结果植株，2. 花瓣，3. 雄蕊，4. 雌蕊群，5. 二瘦果。（据 holotype，孙英宝绘）

Fig. 3 **Ranunculus perdissectus** 1. Flowering and fruiting plant, 2. Petal, 3. Stamen, 4. Gynoecium, 5. Two achenes. (From holotype, drawn by Y. B. Sun)

细裂叶毛茛

Ranunculus perdissectus W. T. Wang, sp. nov.

Ob foliorum laminas vulgo ter divisas, petala quinque, eorum foveolas nectariferas squamis carentes species nova haec est aliquantum similis *R. tangutico* (Maxim.) Ovcz., a quo foliorum laminis pinnatim divisis, floribus in mochasium dispositis valde differt. In *R. tangutico*, foliorum laminae 3-sectae, flores solitarii ad apicem caulis vel ramorum terminales sunt.

Perennial herb. Stems 2, ca. 17 cm tall, from above base long 1 – 2-branched, appressed-puberulous, below with a few leaves. Basal leaves ca. 5, long petiolate; blades papery, broad-ovate or deltoid, 1 – 2.2 × 2 – 3.2 cm, pinnately divided, pinnae 2 pairs, shortly stipitate or sessile, twice or thrice dissected, ultimate lobes narrow-lanceolate-linear, narrow-linear or subfiliform, 2 – 9 × 0.2 – 1 mm, subglabrous or abaxially with sparse hairs; petioles ca. 4 cm long, puberulous. Cauline leaves similar to small basal leaves. Monochasium terminal, 4 – 6-flowered; bracts sessile, 2 – 3-sect, with lobes narrow-linear, 10 – 15 mm long; pedicels 1 – 6 cm long, appressed-puberulous. Flower: Sepals 5, narrow-elliptic, ca. 3 × 1.6 mm, adaxially glabrous, abaxially puberulous. Petals 5, yellow, broad-obovate or obovate, 6.6 × 3 – 4.5 mm, glabrous, 7-nerved, nectariferous pits lacking scales. Stamens 15 – 20, glabrous; filaments narrow-linear, ca. 1.2 mm long; anthers oblong, ca. 1 × 0.3 mm. Gynoecium ovoid, ca. 1.8 × 1 mm; carpels ca. 30, ovaries ca. 0.7 mm long, styles 0.3 mm long, glabrous. Aggregate fruits suboblong, ca. 5 × 2.5 mm; achenes obovoid or narrow-obovoid, 1.2 × 0.8 – 1 mm, appressed-puberulous; persistent styles 0.3 mm long.

Sichuan: Kanding Shi, waze Xiang, Huojiazhong, Zheduo Shan (康定市，瓦泽乡，火荚仲，折多山), alt. 3648 m, alpine timber-line covered with *Rhododentron*, *Sorbus*, *Salix* species, 2010-08-10, J. I. Jeon, H. S. Lee, H. J. Eom, Y. I. Park & B. Liu S11332 (**holotype**, PE).

此种的叶片通常 3 回分裂，花瓣 5，其蜜槽无鳞片，因此，与也具上述特征的高原毛茛 [*R. tanguticus* (Maxim.) Ovcz.]有些相似，与后者的区别在于此种的叶片羽状分裂，花数朵组成单岐聚伞花序而显然不同。在高原毛茛，叶片 3 全裂，花一朵在茎或枝条顶端顶生。（刘亮，1980）

丝茎毛茛组

Sect. **Nematocladium** W. T. Wang, sect. nov. Type: *R. filistolonifer* W. T. Wang.

Herbae pernnes, prostratae. Stolones decem vel plus, filiformes, ex fasciculo foliorum basalium nascentes, et radiatim extrinsecus expansi, ad nodos folia vulgo unum vel duo et radices unam vel duas emittentes. Floris petala tria, et ejus stamina duo. Secundum hos characteres sectio nova haec ex generis *Ranunculi* sectionibus sinensibus ceteris distinguitur.

Species unica, in Shimian Xian Provinciae Sichuan habitat.

多年生草本，平卧。匍匐茎 10 条或更多条自一丛基生叶中生出，并向各方向辐射状展出，丝形，在节上通常生 1~2 叶和 1~2 条根。花的花瓣 2 片，雄蕊 2 枚。按照这些特征，此新组可与毛茛属的中国其他组相区别。（Tamura, 1995；王文采，1995）

1 种，产四川省石棉县。

丝茎毛茛

Ranunculus filistolonifer W. T. Wang, sp. nov.

Perennial herbs, prostrate. Stolons ten or more arising from the fascicle of basal leaves and radiately in various directions spreading out, filiform, 10 – 25 cm long, 0.5(– 1) mm across, near

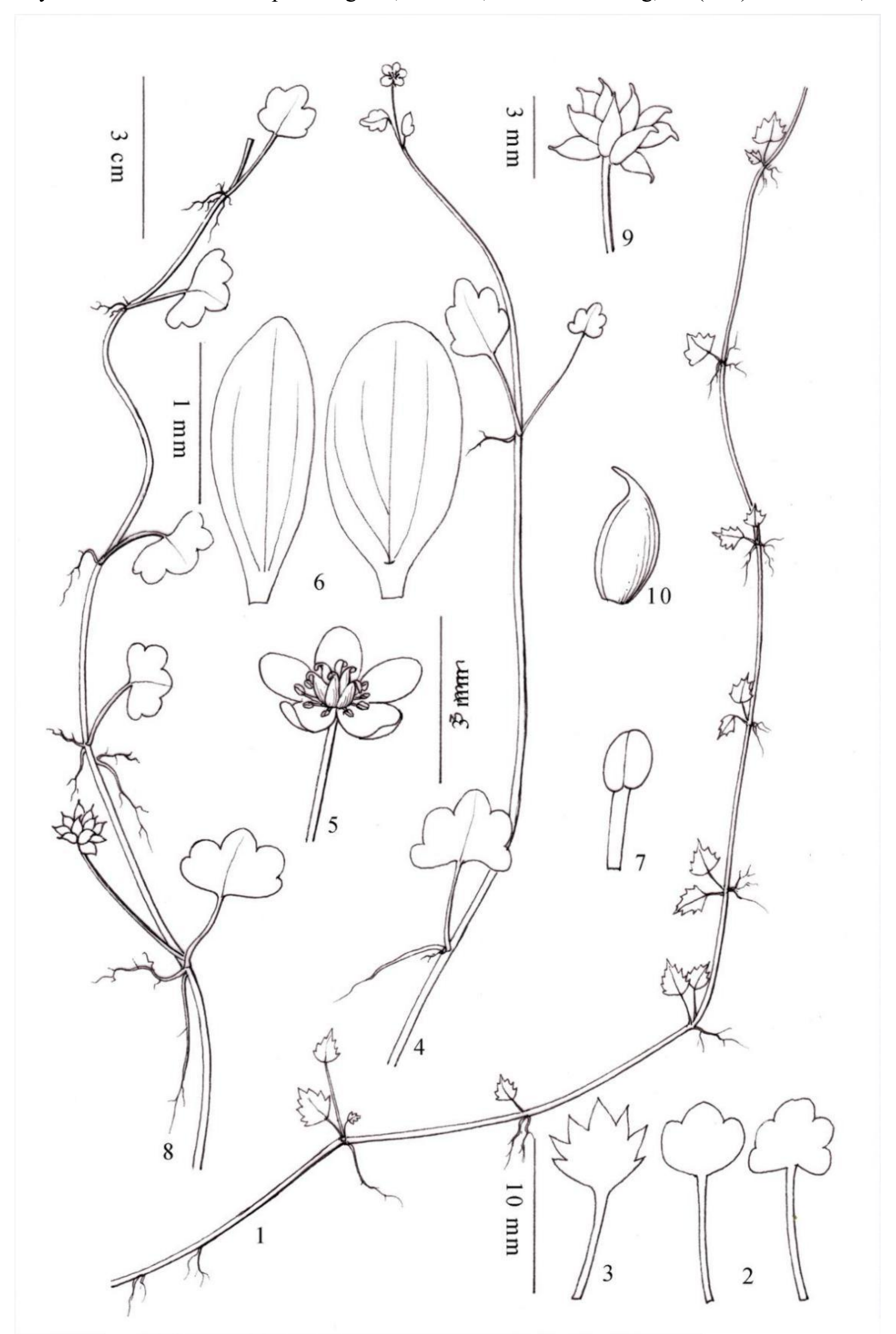


图 4. **丝茎毛茛**　1. 营养匍匐茎；2. 二具圆齿匍匐茎叶，具尖齿匍匐茎叶；4. 开花匍匐茎的一部分，具一朵顶生花；5. 花；6. 二花瓣；7. 雄蕊；8. 结果匍匐茎一部分，具一腋生的聚合果；9. 聚合果；10. 瘦果。（据 holotype，孙英宝绘）

Fig. 4. **Ranunculus filistolonifer**　1. Vegetative stolon; 2. Two stolon leaves with rotund teeth; 3. Stolon leaf with acute teeth; 4. Part of a flowering stolon, with a terminal flower; 5. Flower; 6. Two petals; 7. Stamen; 8. Part

of a fruiting stolon, with an axillary aggregate fruit; 9. Aggregate fruit, 10. Achene. (From holotype, drawn by Y. B. Sun)

leaves with sparse hairs, with inernodes 1.6 – 6 cm long, on each node putting forth 1(– 3) leaf and 1(– 2) root. Basal leaves ca. 5, long petiolate, glabrous; blades papery, renifom-ovate or subsemiorbicular, 3 – 5 × 5 – 7 mm, at base cordate-truncate or truncate, 3 – 5-rotund-dentate; petioles 8 – 10 mm long. There are two kinds of stolon leaves: most stolon leaves similar to basal leaves, but slightly smaller, with blades 1.5 – 4 × 3 – 7 mm, sometimes some upper stolon leaves being rhombic or obovate in shape; some stolon leaves even more smaller, shortly petiolate or subsessile, rhombic or broad-ovate, on each margin with 3 – 4 triangular acute teeth. Flower solitary, terminal or axillary, glabrous. Sepals 3, green, triangular-ovate, ca. 1.2 × 0.8 mm. Petals 3, yellow, elliptic or broad-elliptic, 1.5 × 0.6 – 1.2 mm, at apex rounded, 3-nerved, nectariferous pit lacking a scale. Stamens 2; filaments linear, ca. 0.5 mm long; anthers broad-elliptic, also 0.5 mm long. Carpels 7 – 10; ovaries elliptic, ca. 0.8 mm long; styles ca. 0.2 mm long. Achenes ellipsoidal, slightly compressed, ca. 1.2 × 0.9 mm, glabrous; persistent styles ca. 0.4 mm long, often slightly hooked.

四川 (Sichuan)：石棉县，田湾乡，湾东河 (Shimian Xian, Tianwan Xiang, Wandong River), alt. 2147 m，林下，花黄色 (in forest, fls. yellow), 2019-07-07，张树仁，单章建，李邦泽 (S. R. Zhang, Z. J. Shan & B. Z. Li) 2780 (**holotype** and isotype, PE)。

毛茛组 Sect. Ranunculus

泸定毛茛

Ranunculus ludingensis W. T. Wang, sp. nov.

Ob folia ternata, sepala reflexa, petalorum foveolas nectariferas squamas ferentes carpella glabra species nova haec est affinis *R. sinovasginato* W. T. Wang, a quo plantis scaposis, foliolis longius petiolulatis, petalis haud unguiculatis, carpellis stylos breves ferentibus differt. In *R. sinovaginato*, plantae caulibus foliatis praeditae, foliola breviter petioluata vel sessilia, petala basi unguiculata, carpella stylos subulatos ferentia sunt.

Small perennial herbs, 3 – 6 cm tall. Leaves 3 – 6, all basal, ternate, long petiolate; blades papery, cordate-pentagonal, 0.9 – 2.5 × 1 – 3.8 cm; central leaflet with petiolule up to 1 cm long, broad-rhombic, up to 1.5 cm broad, 3-cleft to 3-parted, with lobes 1 – 2-dentate or entire, lateral leaflets with petiolules up to 5 mm long, obliquely broad-ovate, unequally 2-parted, adaxially appressed-puberulous, abaxially with sparse hairs; petioles 1 – 4.5 cm long, subglabrous. Scape solitary, 2.5 – 5 cm tall, glabrous, on apex 1-flowered. Flower: Sepals 5, refrlexed, narrow-triangular, 4.5 – 5 × 2 mm, glabrous. Petals 5, yellow, suboblong, ca. 8 × 3.2 mm, at base not unguiculate, inconspicuously 5-nerved, apex rounded, nectariferous pit with a semiorbicular scale. Stamens ca. 20, glabrous; filaments linear, rarely narrow-linear, ca. 1.2 mm long; anthers broad-ellitic, ca. 1.3 × 0.8 mm, rarely oblong, ca. 0.8 × 0.4 mm. Carpels ca. 9, glabrous; ovaries narrow-ovate, ca. 2 mm long; styles very short; stigmas 0.25 mm long.

四川 (Sichuang)：泸定县，新兴乡，草坪子村，雅家梗 (Luding Xian, Xinxing Xiang, Caopingzi Cun, Yajiageng), alt. 2 622 m，山坡草地，花黄色 (in grassy place on slope, fls, yellow), 2019-04-20，张树仁，李邦泽，林东亮 (S. R. Zhang, B. Z. Li & D. L. Lin) 3161 (**holotype** and isotype PE)。

此种的叶为三出复叶，萼片反折，花瓣蜜槽具鳞片，心皮无毛，因此，与也具上述特征的褐鞘毛茛[*R. sinovaginatu*s W. T. Wang]有相近的亲缘关系，与后者的区别在于此种具无叶

的花葶，小叶具较长小叶柄，花瓣无爪，心皮花柱极短而不同。在褐鞘毛茛，植株的茎具叶，小叶具短柄或无柄，花瓣有爪，心皮具钻状花柱。（刘亮，1980）

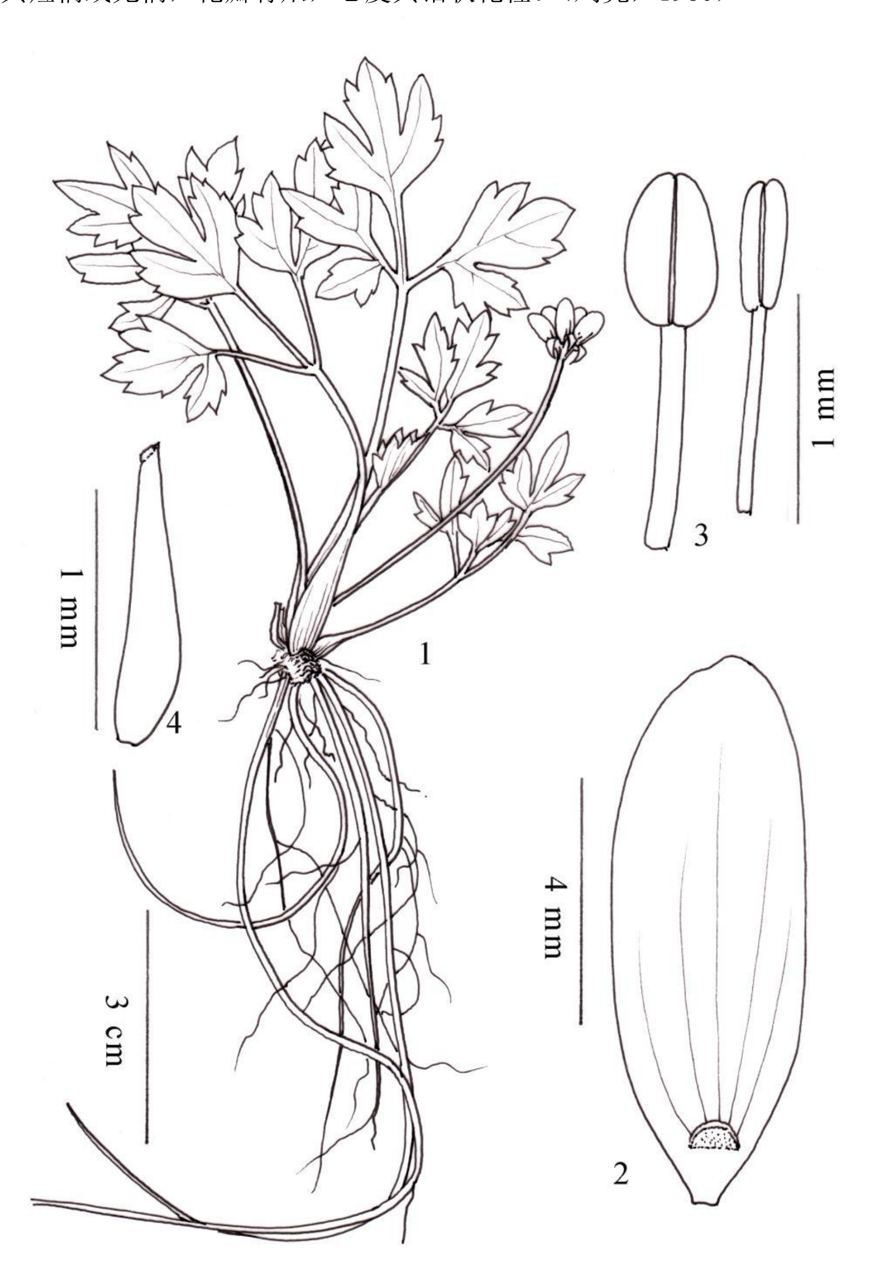


图 5. **泸定毛茛**　1. 开花植株；2. 花瓣；3. 二雄蕊；4. 心皮。（据 holotype，孙英宝绘）

Fig. 5　**Ranunculus ludingensis**　1. Flowering plant; 2. Petal; 3. Two stamens; 4. Carpel. (From holoetype, drawn by Y. B. Sun)

致谢　衷心感谢朱相云，张树仁，班勤诸先生提供珍贵标本，孙英宝先生为本文绘图，并打印稿件。

参考文献：

LIOU L, 1980. *Ranunculus*. In Flora Reipublicae Popularis Sinicae. Beijing: Science Press, 28: 255-331. [刘亮，1980. 毛茛属. 于中国植物志. 北京：科学出版社，28: 255-331.]

TAMURA M, 1995. *Ranunculaceae*: Systematic Part. HIEPKO P, Nat. Pflanzenfam., Zwei. Aufl., 17aIV: 224-497. Berlin: Duncker & Humblot.

WANG WT, 1994. Notulae de *Ranunculaceis* Sinensibus (XVII). Acta Phytotax. Sin. 32(5): 467-479. [王文采，1994. 中国毛茛科植物小志（十七）. 植物分类学报 32（5）：467-479.]

WANG WT, 1995. A revision of the genus *Ranunculus* in China. Bull. Bot. Res. Harbin 15(2): 137-180; (3): 275-329. [王文采，1995. 中国毛茛属修订. 植物研究 15（2）：137-180;（3）：275-329.]